Cisco Systems

CISCO NETWORKING ACADEMY PROGRAM

CCNA 1:
Networking Basics v3.1
Skills-Based Assessment

Student Version

CCNA 1 Skills-Based Final Exam – Option 1

Exam Overview and Guidelines

The overall goal of this skills-based assessment is for the student to connect two PCs to create a small LAN using Ethernet and have the PCs communicate using IP. The student must demonstrate the ability to properly terminate a straight-through Ethernet patch cable and connect two PCs through a hub or switch. In addition, they must be able to create a subnet scheme and configure IP settings in order for the PCs to communicate. The exam consists of three parts:

1. Build and test a patch cable
2. Calculate subnets
3. Cable and configure workstations

All three parts must be completed for a possible total of 100 points. Scores from the online final exam, module exams, completed labs, participation, and attendance can be combined with the grade for this skills-based exam to yield the final course grade. Students should be made aware of what they will be tested on early in the course in order to study and prepare adequately for the exam. The exam overview and guidelines portion can be handed out in advance to give the students time to prepare.

Part 1 – Build and Test Cable

Estimated Time: 15 minutes

Possible Score: 30 points

Objective

Build a straight-through Ethernet cable for connection of two PCs using a hub or switch. Test the cable with a cable tester for correct pinouts and continuity. Use Category 5 or 5e cable and T568A or T568B standards. This cable should be used in Part 3 of this exam. At the start of the exam, the instructor will indicate which one of the two standards to use.

Preparation/Tools

A length of Category 5 or 5e cable, two RJ-45 connectors, wire cutter and stripper tool, crimping tool, basic cable tester, Fluke LAN Cable Meter 620 or Fluke LinkRunner.

Part 2 – Subnet Calculation

Estimated Time: 15 minutes

Possible Score: 30 points

Objective

Given a Class A, B, or C IP address, and specific requirements for the number of subnets, the student should be able to do the following:

- Determine the minimum number of bits to be borrowed
- Identify the subnet mask
- Identify the subnetwork address of a particular subnet
- Determine the range of addresses for a particular subnet

Preparation/Tools

Obtain subnet requirements from the instructor. Provide all subnet calculations in Part 2 of the exam. Use a separate piece of paper to show all work. No computerized subnet calculation tools are permitted.

Part 3 - Workstation Configuration and Cabling

Estimated Time: 15 minutes

Possible Score: 40 points

Objective

Connect two PCs to a hub or switch. Use two straight-through cables, one of them built in Part 1 of the exam. Configure the network settings for each PC. Specify the IP address, subnet mask, and default gateway based on the results from Part 2 of the exam. Use the command prompt or run utility to display the IP configuration settings for each PC. Use the **`ping`** command to demonstrate connectivity between the PCs.

Preparation/Tools

Two PCs with Windows 9x, Me, NT, 2000, or XP installed. Two straight-through patch cables and a hub or a switch.

CCNA 1 Skills-Based Final Exam – Option 2

Exam Overview and Guidelines

The overall goal of this skills-based assessment is for the student to connect two PCs to create a small LAN using Ethernet and have the PCs communicate using IP. The student must demonstrate the ability to properly terminate a crossover Ethernet patch cable and connect two PCs directly. In addition, they must be able to create a subnet scheme and configure IP settings in order for the PCs to communicate. The exam consists of three parts:

1. Build and test a crossover patch cable
2. Calculate subnets
3. Cable and configure workstations

All three parts must be completed for a possible total of 100 points. Scores from the online final exam, module exams, completed labs, participation, and attendance can be combined with the grade for this skills-based exam to yield the final course grade. Students should be made aware of what they will be tested on early in the course in order to study and prepare adequately for the exam. The exam overview and guidelines portion can be handed out in advance to give the students time to prepare.

Part 1 – Build and Test Cable

Estimated Time: 15 minutes

Possible Score: 30 points

Objective

Build a crossover Ethernet cable for connection of two PCs directly. Test the cable with a cable tester for correct pinouts and continuity. Use Category 5 or 5e cable. This cable should be used in Part 3 of this exam.

Preparation/Tools

A length of Category 5 or 5e cable, two RJ-45 connectors, wire cutter and stripper tool, crimping tool, basic cable tester, Fluke LAN Cable Meter 620 or Fluke LinkRunner.

Part 2 – Subnet Calculation

Estimated Time: 15 minutes

Possible Score: 30 points

Objective

Given a Class A, B, or C IP address, and specific requirements for the number of subnets, the student should be able to do the following:

- Determine the minimum number of bits to be borrowed

- Identify the subnet mask
- Identify the subnetwork address of a particular subnet
- Determine the range of addresses for a particular subnet

Preparation/Tools

Obtain subnet requirements from the instructor. Provide all subnet calculations in Part 2 of the exam. Use a separate piece of paper to show all work. No computerized subnet calculation tools are permitted.

Part 3 - Workstation Configuration and Cabling

Estimated Time: 15 minutes

Possible Score: 40 points

Objective

Connect two PCs directly using the crossover cable built in Part 1 of the exam. Configure the network settings for each PC. Specify the IP address, subnet mask, and default gateway based on the results from Part 2 of the exam. Use the command prompt or run utility to display the IP configuration settings for each PC. Use the **`ping`** command to demonstrate connectivity between the PCs.

Preparation/Tools

Two PCs with Windows 9x, Me, NT, 2000, or XP installed and one crossover patch cable.

